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L7: Entry 2 of 2

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Jun 16, 2005

DERWENT-ACC-NO: 2004-102107

DERWENT-WEEK: 200540

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**TITLE:** Thin film magnetic head, with planarized layers, comprises coil layer formed in space surrounded by a lower core layer, protruding layer and back gap layer

INVENTOR: KURIYAMA, T; SATO, K ; WATANABE, T

PATENT-ASSIGNEE: ALPS ELECTRIC CO LTD (ALPS)

PRIORITY-DATA: 2002JP-0354476 (December 6, 2002), 2002JP-0208600 (July 17, 2002)

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**PATENT-FAMILY:**

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<input type="checkbox"/> <a href="#">US 20050128648 A1</a>	June 16, 2005		000	G11B005/127
<input type="checkbox"/> <a href="#">GB 2390933 A</a>	January 21, 2004		097	G11B005/31
<input type="checkbox"/> <a href="#">US 20040012884 A1</a>	January 22, 2004		000	G11B005/127
<input type="checkbox"/> <a href="#">JP 2004103198 A</a>	April 2, 2004		033	G11B005/31

**APPLICATION-DATA:**

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
US20050128648A1	July 16, 2003	2003US-0622045	Div ex
US20050128648A1	January 27, 2005	2005US-0045993	
GB 2390933A	June 13, 2003	2003GB-0013691	
US20040012884A1	July 16, 2003	2003US-0622045	
JP2004103198A	December 6, 2002	2002JP-0354476	

INT-CL (IPC): G11 B 5/127; G11 B 5/31

ABSTRACTED-PUB-NO: GB 2390933A

**BASIC-ABSTRACT:**

NOVELTY - Thin film magnetic head comprises: lower core layer (29) extending from a surface facing a recording medium in the height direction; a protruding layer (32) extending on the lower core layer for a predetermined length from the surface above; and a back gap layer (33) on the lower core layer at a predetermined distance apart from the rear end of the protruding layer in the height direction.

DETAILED DESCRIPTION - The magnetic head also has: a coil layer (35) in the space surrounded by at least the lower core layer (29), protruding layer (32) and back gap layer (33); a coil insulating layer (36) covering the coil layer, tops of the

protruding layer, the coil insulating layers and back gap layer being planarized to a continuous flat surface; a Gd determining layer facing the recording medium; a lower magnetic pole layer (39) and gap layer (40) on the flat surface in order from below; and an upper magnetic pole layer (41) over the gap layer and the Gd determining layer. The lower magnetic pole layer, gap layer and upper magnetic pole layer have a same planar shape and a track width  $T_w$  is determined by the width direction of the upper magnetic pole layer in the track width direction at the surface facing the recording medium. AN INDEPENDENT CLAIM is also included for: a method of manufacturing the magnetic head, which comprises forming the structural layers as described in the order indicated above.

USE - For floating magnetic head applications.

ADVANTAGE - The head is adaptable to narrow tracks, the track width can be precisely formed to a predetermined direction. The magnetic path can be shortened and leakage of a magnetic flux can be suppressed to improve recording characteristics.

DESCRIPTION OF DRAWING(S) - The figure shows a longitudinal sectional view showing the structure of a thin film magnetic head.

lower core layer 29

protruding layer 32

back gap layer 33

coil layer 35

coil insulating layer 36

lower magnetic pole layer 39

gap layer 40

upper magnetic pole layer 41

ABSTRACTED-PUB-NO: GB 2390933A

EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.1/28

DERWENT-CLASS: L03 T03

CPI-CODES: L03-B05M;

EPI-CODES: T03-A03E; T03-A03J3C; T03-A03J5; T03-A05F1;

L13	130934	(insulating or insulation) adj3 layer	US-PGPUB; USPAT	OR	OFF	2005/08/31 15:24
L14	999085	flattened or flattening or flat\$4	US-PGPUB; USPAT	OR	OFF	2005/08/31 15:24
L15	1	I8 and I9 and I10 and I11 and I12 and I13 and I14	US-PGPUB; USPAT	OR	OFF	2005/08/31 15:26
L16	0	I7 and I8	US-PGPUB; USPAT	OR	OFF	2005/08/31 15:26

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	3	((protuberance or protruding) and (back adj2 gap) and ((lower or bottom) adj2 (core or pole)) and ((magnetic or top or upper) adj3 layer) and (coil\$2 near8 toroidal)). CLM.	US-PGPUB	OR	OFF	2005/08/31 17:13

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	1907	360/126.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/08/31 14:50
L2	1179	360/123.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/08/31 14:50
L3	213	I1 and I2	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/08/31 14:50
L4	2873	I1 or I2	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/08/31 14:50
L5	1502875	coil\$2	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/08/31 14:50
L6	1992	I4 and I5	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/08/31 14:51
L7	1	("20050128648").PN.	US-PGPUB	OR	OFF	2005/08/31 15:20
L8	4	protuberance and (back adj2 gap) and (lower adj2 core) and (magnetic adj2 layer)	US-PGPUB; USPAT	OR	OFF	2005/08/31 15:22
L9	13	"first coil pieces"	US-PGPUB; USPAT	OR	OFF	2005/08/31 15:22
L10	15	"second coil pieces"	US-PGPUB; USPAT	OR	OFF	2005/08/31 15:22
L11	802	"connection layers"	US-PGPUB; USPAT	OR	OFF	2005/08/31 15:23
L12	3036	coil\$2 near8 toroidal	US-PGPUB; USPAT	OR	OFF	2005/08/31 15:23